DYM-00-001 (YMEDIA.001A)

Please Amend Claim 1 as follows:

1. (Twice Amended) A color imaging system providing on-the-fly color interpolation using analog signals to reconstruct colors during sensor readout, the imaging system comprising:

an array of pixel sensor elements wherein at east part of the array is arranged in rows and columns;

a color filter including a plurality of color filter components organized in a predefined pattern, the color filter overlaying at least a portion of the array;

a readout control circuit coupled to the array; [and]

an array controller coupled to the array wherein the readout control circuit and the array controller are configured to simultaneously read out values for a group of pixel elements within a first portion of the array, including at least two pixel elements from two different rows and two pixel elements from two different columns and to reconstruct color components for at least a first pixel sensor element and a second pixel sensor element using

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color information from other pixels elements within at least the first portion of the array while the readout control circuit is reading said first portion of the array; and

a plurality of color amplifiers each corresponding to one of said color filter components wherein each said color amplifier has a programmable gain.

Please Amend Claim 29 as follows:

29. (Twice Amended) A method of interpolating color components of an array of pixel sensor elements, said method comprising:

reading a first rectangular portion of an array of pixel sensor elements simultaneously, wherein the first rectangular portion includes pixel sensor elements from at least two array columns and two array rows;

reading a second rectangular portion of the array of pixel sensor elements, wherein the second portion partly overlaps said first portion; and

reconstructing color components using interpolation for at least a third portion of the array while said third

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portion of the array is being read wherein said array of

pixel sensor elements comprises CMOS sensors.

Please Amend Claim 38 as follows:

38. (Twice Amended) A color imager comprising:

a first light sensor which generates a first analog

output signal related to the amount of a first color of

light sensed;

a second light sensor which generates a second analog

output signal related to the amount of a first color of

light sensed;

a third light sensor which generates a third analog

output signal related to the amount of a second color of

light sensed;

a fourth light sensor which generates a fourth analog

output signal related to the amount of a third color of

light sensed;

a circuit configured to read out the first, second,

third, and fourth analog values at the same time; and

an interpolation circuit configured to receive said

first output signal and said second output signal, wherein

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said interpolation circuit provides and interpolation

signal on the fly based on at least said first analog

output signal and said second analog output signal; and

a plurality of color amplifiers each corresponding to

one of said colors of light wherein each said color

amplifier has a programmable gain.

Please Cancel Claims 2, 4-28, 30, 32-37, and 39-42.

Please Add the following New Claims:

43. (New) The system according to Claim 1 wherein said

array of pixel sensor elements comprise CMOS sensors.

44. (New) The system according to Claim 1 wherein said

predefined pattern of color filter components comprises a

Bayer pattern.

45. (New) The system according to Claim 1 wherein said

readout control circuit is programmed to selectively skip

some of said groups of pixel elements to create a lower

resolution said color reconstruction.